

DA 40 AFM
DA 40 F AFM



Supplement E3
AIM 1100-28LK(0F) DIA

**SUPPLEMENT E3
TO THE AIRPLANE FLIGHT MANUAL
DA 40, DA 40 F
ATTITUDE INDICATOR
AIM 1100-28LK(0F) DIA
BF GOODRICH**

Doc. No. : 6.01.01-E, 6.01.02-E

Date of Issue of the Supplement : 01 Mar 2001

Design Change Advisory : OÄM 40-067

Signature :

Authority :


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Date of approval :

18. APR. 2005

This Supplement has been verified for EASA by the Austrian Civil Aviation Authority Austro Control (ACG) as Primary Certification Authority (PCA) in accordance with the valid Certification Procedures and approved by EASA with approval no.: 2005-3345

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0.1 RECORD OF REVISIONS

Rev. No.	Reason	Chapter	Page(s)	Date of Revision	Approval Note	Approval Date	Date Inserted	Signature
1		all	all	20 Apr 2001	n.a.	20 Apr 2001		
2	DA 40 F AFM Rev. 0 EASA Statement	all	all	15 Mar 2005	EASA 2005-3345			

0.2 LIST OF EFFECTIVE PAGES

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0	9-E3-1	15 Mar 2005
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1. GENERAL

This Supplement supplies the information necessary for the efficient operation of the airplane when the attitude indicator AIM 1100-28LK(0F) DIA is installed. The information contained within this Supplement is to be used in conjunction with the complete AFM.

This Supplement is a permanent part of this AFM and must remain in this AFM at all times when the attitude indicator AIM 1100-28LK(0F) DIA is installed.

2. LIMITATIONS

Caging is only accomplished when the airplane is in a wing level, normal cruise attitude, as indicated by other instruments or the natural horizon.

3. EMERGENCY PROCEDURES

If the Warning Flag of the attitude indicator AIM 1100-28LK(0F) DIA comes into view, use remaining instruments to control the attitude of the airplane.

4A. NORMAL PROCEDURES

No change.

4B. ABNORMAL PROCEDURES

No change.

5. PERFORMANCE

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No change.

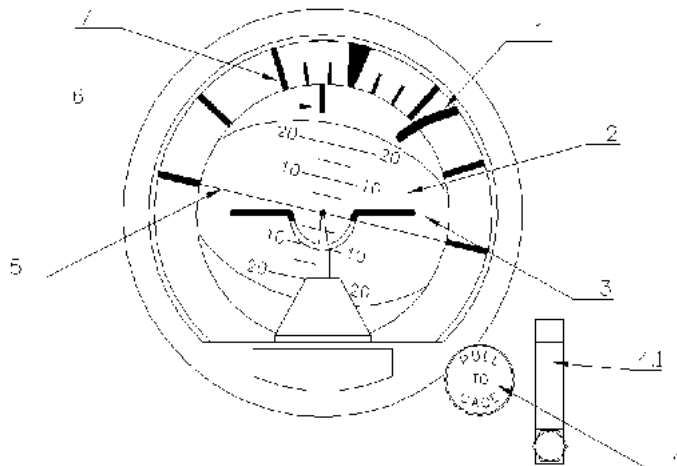
6. MASS AND BALANCE

Upon removal or installation of the attitude indicator AIM 1100-28LK the change of the empty mass and corresponding center of gravity of the airplane must be recorded according to Chapter 6 of the Airplane Flight Manual.

7. DESCRIPTION OF THE AIRPLANE AND ITS SYSTEMS

7.14 AVIONICS

CONTROLS AND DISPLAY



1. **Power Warning Flag** - When in view, the flag indicates that the power of the attitude indicator is OFF. When retracted, the flag indicates that the power is ON.
2. **Display** - Directly linked to a vertical gyroscope. It provides direct indications of pitch displacement in 5° increments. Lower area of display, when referenced to the miniature airplane, indicates that the airplane nose is below horizon. Upper area of display indicates that the airplane nose is above horizon.
3. **Miniature Airplane** - Represents airplane nose and wings. Indicates roll and pitch attitude relative to the horizon. The miniature airplane can be moved in pitch using Airplane Adjustment Knob.
4. **Caging Knob (Manual Erection)** - Pull to cage the indicator. When pulled, rotated and released in the detent position, it locks roll and pitch gimbals in caged position.
 - 4.1. **Guard for the Caging Knob** (not part of the attitude indicator) - The guard is installed to prevent unintended caging of the attitude indicator.
5. **Horizon Line** - Indicates earth horizon relative to airplane pitch attitude.
6. **Fixed Roll Index** - Attached to gyro case. Indicates airplane roll displacement relative to a rotating roll scale that is attached to gyro roll gimbal.
7. **Rotating Roll Scale** - Attached to gyro roll gimbal to indicate airplane roll displacement relative to a fixed roll index attached to the gyro case.

STARTING PROCEDURES

The following operational procedures are recommended when preparing the indicator for use:

CAUTION

The indicator may be damaged if the 'PULL TO CAGE' knob is released with a 'snap'. Release 'PULL TO CAGE' knob avoiding a 'snap' release.

NOTE

The Indicator may be momentarily caged by pulling 'PULL TO CAGE' knob to the fully extended position, holding knob until the display stabilizes, and then allowing the knob to return quickly to the normal position. An increase in audible noise, when the indicator is operated in the caged position, may be evident but is not abnormal.

- Apply power to the indicator. Note that power flag stows out of view. Allow two minutes for presentation stabilization.
- If caging is required, caging is only accomplished when the airplane is in a wing level, normal cruise attitude, as indicated by other instruments or the horizon. If the gyro is caged when the airplane is not in this attitude, the resulting attitude presentation immediately after caging will be in error by the difference between

true vertical and actual airplane attitude. Errors of less than 7.0° will automatically erect out at a nominal rate of 2.5° per minute.

IN-FLIGHT PROCEDURES

In the event of errors in excess of 8.0°, caused by extended bank or fore-aft acceleration, the indicator should be momentarily caged after the airplane is returned to level flight.

DYNAMIC ERRORS

– Turn Induced Errors

Pitch indicating errors resulting from a standard coordinated turn (180 degrees in one minute at a true airspeed of 156 knots) will not exceed 3°. Dynamic errors developed under nonstandard conditions may be greater. Errors that develop will be self corrected by the internal erection system or manually corrected by the actuation of the caging system.

– Acceleration & Deceleration Errors

Pitch indicating errors may occur due to accelerations experienced during take-off, climb-out, descent, and landing. Errors that develop will be self-corrected by the internal erection system or manually corrected (in straight and level flight) by the actuation of the caging system.

– Taxiing Errors

A pitch and roll indicator display error of approximately 1° will occur during a sudden 90° ground turn. A pitch indicator display error of approximately 2° will occur during a sudden 180° ground turn. Errors that develop will be self corrected by the internal erection system or manually corrected by the actuation of the caging system.

– Pitch Indicator Fluctuation (Bar Jitter)

Vertical fluctuation (\bar{u}) of the pitch indicator display will not exceed 0.012 inch total when the range of indication is from 0° to $\pm 20^\circ$. When the indicating range is beyond $\pm 20^\circ$ the total fluctuation will not exceed 0.08 inch.

8. AIRPLANE HANDLING, CARE AND MAINTENANCE

No change.